

FIG.1A

| + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|
| | 1 | - | _ | - | 1 | - | ı |
| + | + | + | + | + | + | + | + |
| - | | _ | — | 1 | - | 1 | 1 |
| + | + | + | + | + | + | + | + |
| 1 | _ | - | 1 | 1 | - | _ | _ |
| + | + | + | + | + | + | + | + |
| - | _ | _ | _ | _ | _ | _ | _ |

FIG.1B

| - | | - | - | - | - | - | - |
|---|----------|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + |
| _ | - | 1 | | _ | _ | 1 | |
| + | + | + | + | + | + | + | + |
| | _ | _ | _ | _ | _ | - | _ |
| + | + | + | + | + | + | + | + |
| _ | _ | _ | | _ | | | |
| + | + | + | + | + | + | + | + |



FIG.2A

| + | - | + | _ | + | - | + | 1 |
|---|---|---|---|---|---|---|---|
| + | 1 | + | - | + | | + | _ |
| + | _ | + | | + | 1 | + | ı |
| + | _ | + | _ | + | 1 | + | 1 |
| + | ı | + | _ | + | 1 | + | - |
| + | ı | + | 1 | + | ı | + | 1 |
| + | ı | + | ı | + | ı | + | 1 |
| + | ı | + | 1 | + | ı | + | ı |

FIG.2B

| ı | + | + | + | | + | - | + |
|---|---|---|---|---|---|---|---|
| - | + | - | + | | + | - | + |
| 1 | + | I | + | - | + | | + |
| ı | + | I | + | _ | + | _ | + |
| 1 | + | I | + | 1 | + | - | + |
| ī | + | ١ | + | _ | + | _ | + |
| 1 | + | ı | + | 1 | + | ļ | + |
| ı | + | ı | + | ı | + | ı | + |



FIG.3A

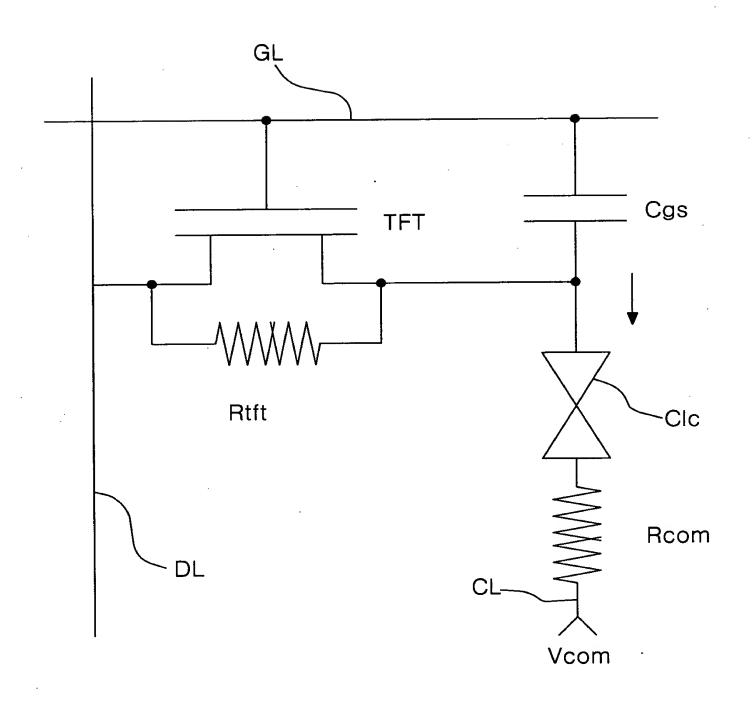
| + | - | + | _ | + | _ | + | - |
|-----|---|---|----|---|---|---|---|
| - | + | 1 | + | _ | + | 1 | + |
| + | 1 | + | ı | + | - | + | - |
| _ | + | _ | + | - | + | 1 | + |
| + | - | + | 1 | + | - | + | _ |
| _ | + | - | +. | _ | + | 1 | + |
| + | 1 | + | 1 | + | | + | _ |
| . — | + | _ | + | _ | + | | + |

FIG.3B

| | + | 1 | + | 1 | + | 1 | + |
|---|---|---|---|---|---|---|---|
| + | - | + | 1 | + | 1 | + | _ |
| | + | - | + | - | + | - | + |
| + | _ | + | - | + | ı | + | _ |
| _ | + | 1 | + | - | + | ١ | + |
| + | - | + | - | + | | + | _ |
| _ | + | 1 | + | _ | + | | + |
| + | _ | + | | + | | + | _ |



FIG.4



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| - | JTH GATE DRIVER IC (J-K)*K+1 | | 2ND GATE DRIVER IC K+1~2K | 1ST GATE DRIVER IC 1~K | | |
|---|---|----|---|---|-----------------------|-------------------------|
| - | ~ J * K | | + 1 + 1 + 1 + 1 | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | WHEN THE OF CHANN | 1ST COLUI DRIVER |
| | + + + + + + + + + + | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | NUMBER EL IS 1~M | R ICMN |
| | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | ▗ ╄ ┈╄ ╌ ┞╒┠╒╏ | M+1~2*M | 2ND COLU |
| | + + + + + + + + + + | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | + + + + + | * - + X + | OMN |
| | : : | | | | | |
| : | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | | + | (N-2)*M+ | (N-1)TH DRI |
| | + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | + + + + + + + + + + | (N-2)*M+1~(N-1)*M |)TH COLUMN DRIVER IC |
| | + + + + + + + + + + | | + + + + + + + + + + | | | |
| | | | | : :- | * M + 1 | TH COLUMN DRIVER IC |
| | + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | | + I + I + I + I I + I + I + I + I + I + | 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | Z <u>*</u> | CMN |
| | | 10 | | - | | 12 |

FIG.5A

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| JTH GATE DRIVER IC (J-K)*K+1 ~J*K | - | 2ND GATE DRIVER IC K+1~2K | 1ST GATE DRIVER IC 1~K | | |
|---|---|---|--|--------------------------|----------------------------|
| + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | + 1 + 1 | + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | F CHANN | 1ST COLU DRIVER |
| | | | | NON I | RIC |
| + + + + + + + + + + | | + + + + + + + + + + | ╀╌╀╌╂╌╂╌╂╌╂ | M+1~2*M | 2ND COLU |
| + + + + + + + + + + | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | + + + + + + + + + + | 2*M | RIC |
| : | | ; | | | |
| + + + + | | + + + + | + + + + | 1 (Z | |
| | | + 1 + 1 + 1 + 1 | + + + + | -2)*M+1~ | (N-1)TH C DRIVER |
| | | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | + 1 + 1 + 1 + 1 : : | $(N-2)*M+1 \sim (N-1)*M$ | N-1)TH COLUMN DRIVER IC |
| 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | | | + 1 + 1 + 1 + 1 · · · · · · · · · · · · · | 3 | TH COLUMN RIVER IC |
| 1 + 1 + <td></td> <td></td> <td>+ 1 + 1 + 1 + 1 · · · · · · · · · · · · · · · · · · ·</td> <td>(N-</td> <td>TH COLUMN RIVER IC</td> | | | + 1 + 1 + 1 + 1 · · · · · · · · · · · · · · · · · · · | (N- | TH COLUMN RIVER IC |

FIG.5B



FIG.6A

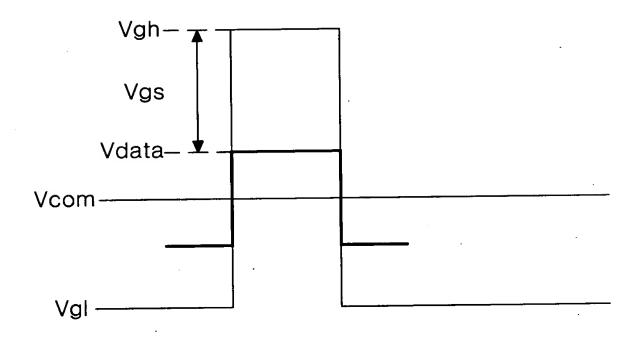
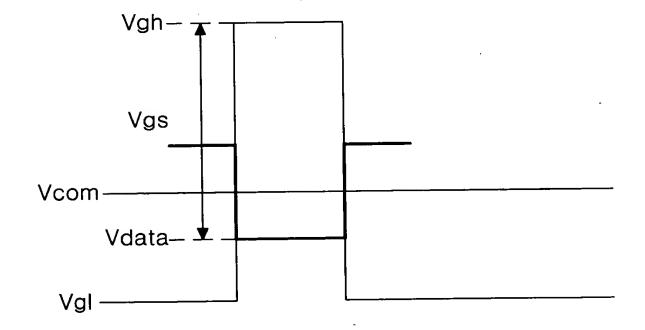


FIG.6B



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| _ | T | 1 |
|---|---|---|
| (| J | |
| | | 1 |
| | | > |

.

| JTH GATE DRIVER IC | | 2ND GATE DRIVER IC | 1ST GATE DRIVER IC | | |
|---|------------|--|---|--|-------|
| (J-K)*K+1 ~J*K | | K+1~2K | 1~K | | |
| 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + | | 1 + 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - <td>+ + + + </td> <td>1ST COLU DRIVER WHEN THE N</td> <td></td> | + + + + | 1ST COLU DRIVER WHEN THE N | |
| + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | ┨╸┨╸╏╸╏╶╏╶╏╶╏╸ | IC IC IS 1~M MBER 2 | |
| + + + + + + + + + + | | + + + + + + + + + + | | R IC 2*M | FIG.7 |
| + + + + + + + + + + | • • • • | + + + + + + + + + + | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | (N-1)TH COLUMN DRIVER IC (N-2)*M+1~(N-1)*M | |
| + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | + + + + + + + + + + | | | |
| + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | + 1 + 1 + 1 + 1 | + X Z | |
| | (| _ | | | |

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| JTH GATE DRIVER IC (J-K)*K+1 ~J*K + + + + + + + + + | 2ND GATE |
|--|--|
| 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | 2ND COLUMN DRIVER IC N+1-++ -++ -++ -++ -++ -++ -++ -++ -++ -+ |
| | (N-1)TH COLUMN NTH COLUMN DRIVER IC THE ICH |
| 1 + 1 + 1 + 1 + 1 + 1 + 1 | + + + + + + + + + + |

·

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JTH GATE DRIVER IC

| DRIVER IC | | DITIVELLIO | טוועבוים | ⊣ | |
|---|-------|---|--|--------------------------------------|-----------------------------|
| (J-K)*K+1 ~J*K | | K+1~2K | 1~K | | |
| | | | + + + + | WHEN THE NUMBER OF CHANNEL IS 1~M | 1ST COLUMN DRIVER IC |
| 1 | | + + + + + + + + + | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | BER 1~M | |
| + 1 + | | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - <td>+ 1 + 1 + 1 +</td> <td>M+1~2*M</td> <td>2ND COLUMN DRIVER IC</td> | + 1 + 1 + 1 + | M+1~2*M | 2ND COLUMN DRIVER IC |
| I + I + I + I + + I + I + I + I I + I + I + I + + I + I + I + I | | I + I + I + I + + I + I + I + I I + I + I + I + I + I + I + I + I + I | + 1 + 1 + 1 + | + - + - + - | OMN |
| : | | • | • | | |
| 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + | · | 1 + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! + ! ! + ! <td>+ 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1</td> <td>(N-2)*M+1~(N-1)*M</td> <td>(N-1)TH COLUMN DRIVER IC</td> | + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | (N-2)*M+1~(N-1)*M | (N-1)TH COLUMN DRIVER IC |
| + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + | | + I + I + I + I I + I + I + I + I I + I + I + I + I | ┩═╏┈╏┈╏┈╏┈╏ | (N-1)*M | IC NMN |
| + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 | • • • | + 1 + 1 + 1 + | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | - + - + - + - + | NTH COLUMN DRIVER IC |
| | | + 1 + 1 + 1 + 1 + | + i + i + i + i + i + i + i + i + i + i + i + i + i + i + i + i + i i + i + i + i + i + i | 1~N*M | ICMN |

2ND GATE DRIVER IC

1ST GATE DRIVER IC

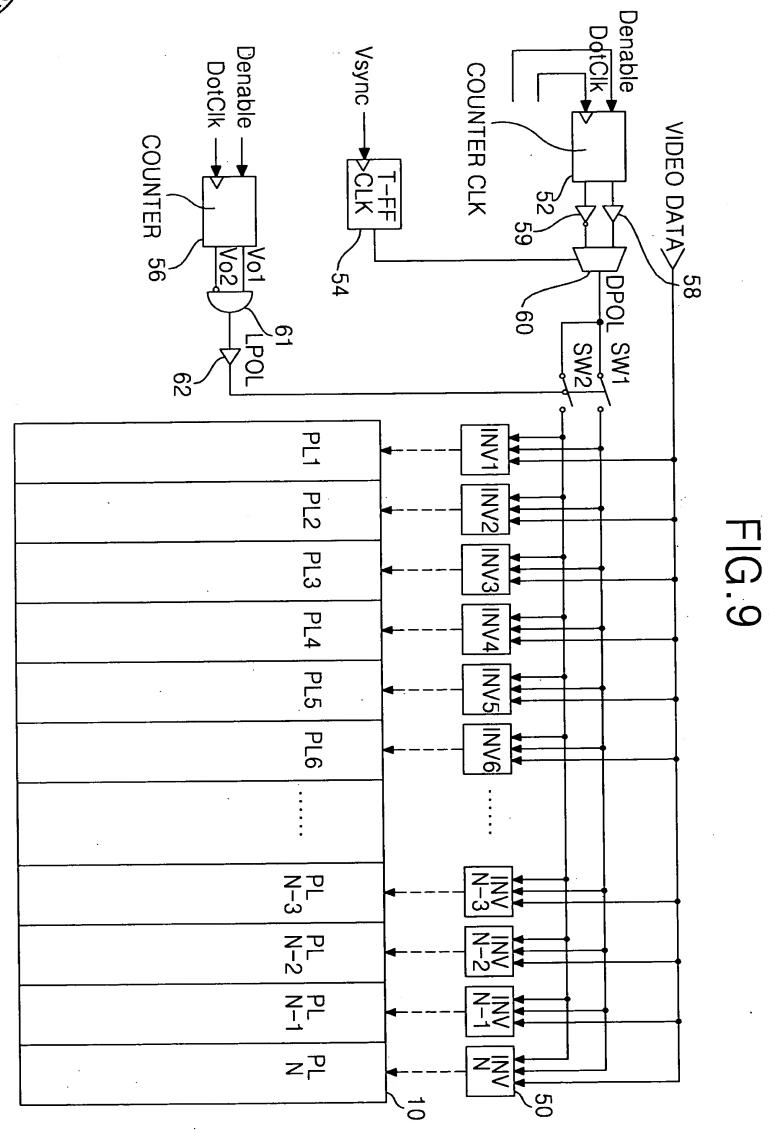
FIG.8A

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| JTH GATE DRIVER IC (J-K)*K+1 | | 2ND GATE 1ST GATE DRIVER IC DRIVER IC 1~K | |
|---|-------|---|-----------------------------|
| ~J*K + + + + + + + + | | + + + + + + + + + OF OF OF AN | 1ST COLU DRIVER |
| + + + + + + | | + + + + + + + + + | ON N |
| + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 | | + + + + + + + + + + | 2ND COLU |
| 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | | 1 + 1 | CMN |
| | | | |
| + I + I + I + I I + I + I + I + I + I + I + I + I I + I + I + I + I + I + I + I + I + I | | (N-2)*M+1 | (N-1)TH COLUMN DRIVER IC |
| 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 1 + 1 + | | | OLUMN |
| 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + | | + + + + + + + + + | NTH COLUMN DRIVER IC |
| 1 + 1 + 1 + 1 + 1 + + 1 + 1 + 1 + 1 + 1 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 | · · · | + + + + + + + + + | 3 IC LUMN |
| | \ | | _ |

FIG.8B





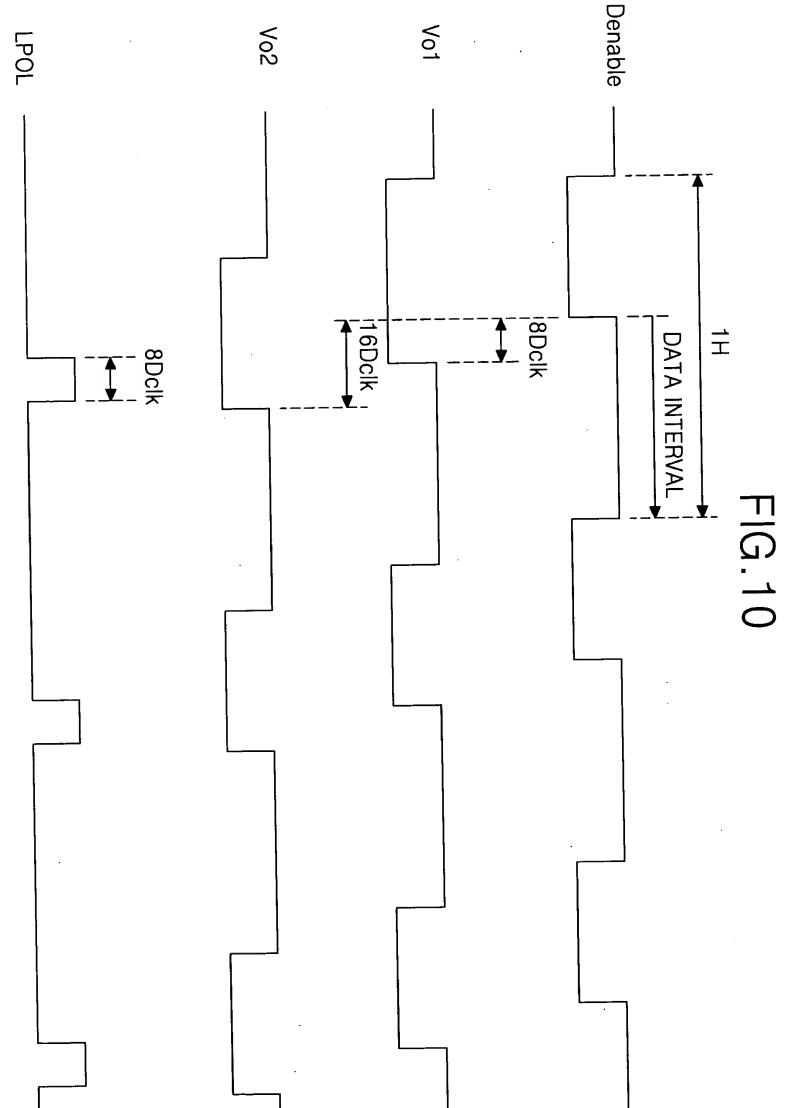




FIG.11

